DOCUMENT RESUME

ED 295 171 CS 211 264

AUTHOR Hafstrom, Loy Lynette
TITLE The Effects of a Holistic Writing Program on the Spelling Achievement of Second Graders.
PUB DATE 88
NOTE 109p.; Master's Thesis, Olivet Nazarene University.
PUB TYPE Reports - Research/Technical (143) -- Dissertations/Theses - Master Theses (042)

EDRS PRICE MF01/PC05 Plus Postage.
DESCRIPTORS Classroom Research; Grade 2; *Holistic Approach; Primary Education; *Spelling Instruction; *Writing Instruction; *Writing Processes
IDENTIFIERS *Collaborative Writing

ABSTRACT

A study investigated whether spelling could be taught more effectively through a holistic writing approach than through the traditional basal textbook approach. Subjects, 19 second grade students at an elementary school in Sheldon, Illinois, first received six weeks of formal spelling instruction using the 1985 edition of the second grade spelling book published by Houghton Mifflin, and then received six weeks of informal spelling instruction as part of a holistic writing process program. For a pretest and posttests after both instructional units, subjects were administered a diagnostic spelling inventory--levels 3, 2, and 1 of the Qualitative Inventory of Word Knowledge. A free writing sample was also collected, which, along with the Inventory, was scored using a bigraph count. The results of the study indicated that instruction in spelling using a holistic writing approach did not significantly increase the score of second graders on Level 1, 2, or 3 of the Qualitative Inventory of Word Knowledge. However, spelling instruction using a holistic writing approach did significantly increase the willingness of second graders to attempt to spell unknown words. Finally, movement into higher instructional levels was more frequent after the holistic writing treatment. (Sixty-one references and 10 tables are included, and 7 analysis of variance calculations, a letter to parents, and extensive charts depicting individual children's spelling on the Qualitative Inventory of Word Knowledge are appended.) (ARH)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED295171

THE EFFECTS OF A HOLISTIC WRITING PROGRAM ON THE SPELLING ACHIEVEMENT OF SECOND GRADERS

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
Loy Lynette Hafstrom
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
☐ This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.
• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

BY

LOY LYNETTE HAFSTROM

B.S., Indiana State University, 1962

THESIS

Submitted in partial fulfillment of the requirements
for the degree of Master of Arts in Education
in the Graduate School of
Olivet Nazarene University, 1988

Kankakee, Illinois

CS211264

LIST OF TABLES

CHAPTER		PAGE
I	Introduction, Statement of the Problem, Hypotheses, Definition of Terms	1
II	Review of the Related Literature	6
III	Design of the Study	16
IV	Results of the Study.	19
V	Limitations of the Study, Conclusions, Implications of the Study, Recommendations.	27
Works Consulted		32
Appendix A		
Appendix B		

LIST OF TABLES

TABLE I . . . . . Analysis of Variance
Total Group Scores
Qualitative Inventory of Word Knowledge

TABLE II. . . . . Analysis of Variance
Level 1 Scores
Qualitative Inventory of Word Knowledge

TABLE III . . . . . Analysis of Variance
Level 2 Scores
Qualitative Inventory of Word Knowledge

TABLE IV. . . . . Analysis of Variance
Level 3 Scores
Qualitative Inventory of Word Knowledge

TABLE V . . . . . Analysis of Variance
Bigraph Scores--Free Writing Sample

TABLE VI. . . . . Analysis of Variance
Words Attempted--Free Writing Sample

TABLE VII . . . . . Instructional Levels

TABLE VIII. . . . . Total Percent Scores
Percentage Point Gains

TABLE IX. . . . . Number of Words Attempted
Free Writing Sample

TABLE X . . . . . Sample Spellings
Qualitative Inventory of Word Knowledge

The Effects of A Holistic Writing Program
on the Spelling Achievement of Second Graders

Introduction

The correct spelling of English has long been given great importance. For many years the ability to spell was considered to be the mark of an educated person. During this time, the teaching of spelling has been reliant on memorization of a graded word list and a few rules. However, success on a word list does not assure success in free writing, and good scholarship in other areas is not a predictor of good spelling.

Today there is a great emphasis on the benefits of writing in the curriculum as part of a whole-language approach to teaching and learning. Children are being given opportunity to practice language skills such as spelling through writing, in the belief that those skills will improve with use.

Problem

The problem addressed by this study is, then, the question of whether spelling <u>can</u> be taught more effectively through a holistic writing approach, or, stated more formally:

> Will second grade students at Sheldon Grade School score as well on a spelling list test and a free writing sample after instruction in spelling as part of a holistic writing approach as they will after instruction in spelling with a traditional basal textbook approach?

Hypotheses

From the problem statement and the information gathering process the following hypotheses have been formed.

1. Scores obtained by second graders on a spelling bigraph count on the Qualitative Inventory of Word Knowledge will be significantly higher after instruction with a holistic writing process approach than after instruction with a traditional approach to spelling instruction.

2. Scores obtained by second graders on a spelling bigraph count of a free writing sample will be higher after instruction with a holistic writing process approach than after instruction with a traditional textbook approach to spelling instruction.

3. Scores obtained by second graders on a bigraph count on the Qualitative Inventory of Word Knowledge will show a greater increase in instructional level after instruction with a holistic writing process approach than after instruction with a traditional textbook approach to spelling instruction.

4. The number of words attempted on a free writing sample will be significantly higher after instruction with a holistic writing process approach than after instruction with a traditional textbook approach to spelling instruction.

Definition of Terms

Holistic Writing. A method in which writing is taught as a process; that is, writing skills are developed as a series of stages, one evolving and expanding from another. Holistic writing builds from all the elements of the language arts (i.e., listening, speaking, reading, and writing). The holistic model can be used at all grade levels and in all content areas (Groves 6).

Instructional Level. Level at which the child can be taught with the most benefit. In this study, instructional levels are determined according to a percentage score breakdown defined by Morris, Nelson, and Perney (181), and shown in Figure 1 below.

Figure 1

Level	Percentage Score
Independent	90-100 percent
Instructional	50-89 percent
Frustration	0-49 percent

Traditional Textbook Approach to Spelling. The basal textbook presents graded lists of words based on some spelling pattern such as long vowels, consonant patterns such as ff, ll, or ss, or inflectional endings such as ed or ing. Students take a pre-test, do three or four pages of practice, some of which are teacher-directed and involve the unit principle and some review concepts, then take a post-test on the word list for the week. Review units are spaced at intervals of about six weeks. The basal textbook for this study will be the 1985 edition of the second grade spelling book published by Houghton Mifflin.

Qualitative Inventory of Word Knowledge. A diagnostic spelling inventory with levels 1-6 developed by George Schlagel. Twenty to thirty words are listed per level. The lists were selected from the graded frequency lists used to develop the 1982 Houghton Mifflin Spelling Program (Morris, Nelson, and Perney 197).

For the purposes of this study three lists will be administered to the second grade subjects; the list at the second grade level, the list below level (first grade), and the list above level (third grade). The inventory will be quantitatively scored with a bigraph count.

Bigraph Count. A scoring system for spelling in which the scorer imagines a blank space in front of the first letter in a word and after the last. The scorer moves across the misspelled word from left to right, comparing its sequential letter pairs with the sequential pairs in the correct spelling (Morris, Nelson, and Perney 191). (See Figure 2)

Figure 2

Correct Spelling		Misspelling	
NATURE		_NACHER_	
_N	1 point	_N	1 point
NA	1 point	NA	1 point
AT	1 point	AC	0 point
TU	1 point	CH	0 point
UR	1 point	HE	0 point
RE	1 point	ER	0 point
E_	1 point	R_	0 point
	7 points		2 points

To adjust for word length, bigraph count scores are converted to percentages. Performance on the bigraph count has been found to correlate highly with scores on standardized spelling tests.

Process Writing Approach. An approach which assumes that writing is a process consisting of states, one growing out of another as the piece of writing develops. The stages include prewriting,

drafting, revision, editing, and publication. Children are given a twenty to forty minute period each day for free writing, and are encouraged to use invented spelling to get their ideas down on paper. The teacher holds informal conferences with students about their writing, listening to what they have written, asking questions to guide them through the process, and discussing the necessity for the writing conventions (spelling, punctuation, grammar, etc.).

Group conferences are held to discuss common problems with the writing process or the conventions. Revision to improve the piece of writing is encouraged. Student editing of early drafts for errors in spelling, capitalization, and punctuation is also encouraged. Final editing with the teacher is completed before the piece is published in the form of an individual or class book, in a school publication, as a poster in a hallway, or in any of many other forms. The focus at all times is on the process, not the product. Writing is not graded or marked, but shared. Children keep a folder with all their collected writings, so that progress from the first piece of the year to the last is easily seen by teacher, child, and parent.

Invented Spelling. Spellings constructed by the child for words he does not know how to spell conventionally. The student is encouraged to spell the word as he thinks it might be spelled, with the understanding that the spelling will be standardized during the writing process.

Chapter II

Review of the Related Literature

Educators have long been dissatisfied with the results of spelling instruction. There is little carry-over from spelling study to the use of correct spelling in writing. Students who achieve perfect scores on spelling word list tests on Friday often misspell the same words in compositions on Monday. English spelling has been assumed to be difficult because it is not closely related to speech sounds, and errors have been attributed to poor sound discrimination and inadequate visual and sequential memory (Henderson and Templeton 305).

During the eighteenth, nineteenth, and early twentieth centuries, the mark of an educated person was thought to be his ability to spell, for to overcome the difficulties of English orthography was a symbol of good scholarship (Hodges 284). Edmund Henderson has said there were three academic levels in society at this time--those who had been to college, those who spelled correctly, and those who were semiliterate (24).

The only teaching method in use during this time was memorization. Words, syllables, and rules, if committed to memory, would solve the problem of spelling, according to the methodology of the time. Until the 1950's research in spelling centered mainly upon whether words should be studied in lists or in context, and in what sequence: study-test, or test-study-test. The wide interest in behaviorist psychology at that time greatly influenced the direction of the research. Memorization and drill on a core of words to be used for written communication were

acclaimed as the only way for pupils to learn due to the irregularities of English orthography.

Jerry Zutell states that the results of rote memorization are "inefficient processing boredom or frustration, the development of a strong dislike for writing in general, and a lack of carry-over from the teaching-testing situation to their own written products (e.g. class compositions, essary examinations, term papers)" (848).

During the 1950's, linguists began to assert that English spelling was not so irregular as had been thought. Many researchers concluded that there is regularity in English spelling, but it is tied more to meaning and syntax than to pronunciation.

In the early 60's, Stauffer participated in the "first grade studies." Henderson writes that:

> It has been planned that these students would be helped to make sentences using words they had learned which were printed on little chips of tag board. But early in the study, some children, frustrated at not finding a word that they wanted to use, took an empty chip and invented the word that they wanted. Stauffer and his team . . . . gave the children pencils and paper and urged them to write on their own. (33)

It was not until the studies of Charles Read in 1970 that the direction of thought about spelling changed. Read analyzed the spontaneous spelling of thirty preschoolers who were able to identify and name the letters of the alphabet and who had invented spellings for words. He found that each child arrived at roughly the same system, and he explained the choice of certain spellings in terms of the structure of sounds in English (1-35).

The importance of Read's study was immediately recognized, and his

findings were validated by other studies, such as the one by Richard Gentry, as outlined in Learning to Spell Developmentally, applied the developmental spelling classification system to the case study Glenda Bissex wrote about in GNYS AT WRK. Bissex follows the progress of her son, Paul, from age four through the age of nine and provides a wealth of information from which Gentry establishes several stages through which spellers move to spelling competency (192-200).

The stages, as identified by Gentry and presented in chart form by Wood (710), may be seen in Figure 2. Titles in parentheses represent Gentry's earlier thinking (192-200).

Figure 2

Gentry's Four States of Spelling Development

Stage	Characteristics	Examples
Precommunicative (Deviant)	Random ordering of letters and other symbols known by child, sometimes interspersed with letter-like marks.	b+Bpa=monster !zPAHIe=giant
Semiphonetic (Prephonetic)	One, two, and three letter representations of discrete words. Letters used represent some speech sounds heard in a word.	MSR-monster P=pie DG=dog
Phonetic	Spellings include all sound features of words, as child hears and articulates them.	PPL=people ChroBL=trouble
Transitional	Vowels are included in every recorded syllable; familiar spelling patterns are used, standard spelling is interspersed with "incorrect" phonetic spelling.	highcked=hiked tode+toad come=come

In 1936, Gates, in a study of spelling ability, asked students to attempt to spell words from one grade level higher than their grade placement in order to measure their "best guess," or invented spelling. He identified the most frequent error for each word at each grade level. His results lay uninterpreted for over thirty years, until after Read's breakthrough study. Temple, in 1978 (cited in Henderson 85), found correlations between Gates' data from fifty years ago and the stages of development from Read's study. Schlagel, in an unpublished doctoral dissertation, discusses the results of a repetition of the study using some of Gates' target words on a contemporary sample. Because Read's study was not done on a representative sample, but rather with children whose parents were mainly linguists, these follow-up studies were vital to prove that the stages Read had discovered were common to all children.

If progress toward spelling competency is developmental, and indeed the research overwhelmingly supports the idea, there are important implications for the classroom. Most of the researchers agree that formal instruction in spelling should not begin until after the first grade year (DiStefano and Hagerty 374, Hillerich 302, Beers and Beers 578, Morris and Perney 455). There is also agreement that a whole-class method of instruction cannot possibly meet the needs of a group whose spelling instruction levels may have a range of five to ten years (Morris, Nelson, and Perney 186).

Finally, there is a near-total agreement among researchers upon the importance of writing to spelling development.

In Three Assumptions About Learning to Spell, Beers and Beers assert that:

> It is during the act of writing that the rationale and function of spelling becomes most clear to a primary school child. (578)

Morris and Perney encourage the first grade teacher to:

> . . . feel comfortable engaging her students in meaningful writing activities long before the children can meet the adult standard of "correct" spelling. (35)

Zutell believes that:

> Children need opportunities for and encouragement to explore thought and structure through their own writing. (847)

Gentry and Henderson are committed to encouraging children to write, stating that:

> Children must manipulate and discover words. They must test their theories of how the alphabet works by contrasting their productions with standard orthography. Children learn to do these things when they are encouraged to write independently. Such encouragement guides them to the threshold of acquiring written language facility. (632)

Elaine Lutz, writing in Language Arts, states that:

> Writing, integrated with all aspects of the curriculum, should be a natural part of the daily classroom routine. Frequent application of spelling knowledge while writing encourages spelling competency. (744)

Hodges writes of the necessity to integrate spelling and other subject matter.

> . . . knowledge about English orthography and other writing conventions--is learned throughout life by an interaction with written language whenever it is encountered. Every teacher who involves students in writing and reading in any subject is, in a practical sense, a teacher of spelling. (289)

Other researchers agree that integration of spelling, reading, and writing will improve all three. Henderson and Templeton state that:

> Learning to spell is an active process, not a passive one. Progress always entails word knowledge derrived from reading and from applying the knowledge through purposeful writing. (314)

Clay (cited by Wood) points out that:

> Writing focuses children's attention on the specific details of words--the separate letter sounds, and sequence of letters. This awareness probably eventually contributes to accuracy of visual inspection of words in reading, as well as to the accurate visual memory of word forms which is essential for spelling competency. (715)

Beers and Beers (Vowel Spelling Strategies) conclude:

> One final comment needs to be made about learning to spell and its relation to learning to read. To read, a child must be able to recognize words or at least enough words or at least enough words in a running test. Learning to spell is an avenue that children can take to recognize, not just words, but those components of words that distinguish one word from another. Spelling needs to be examined in light of what it can tell children about words in their writing and their reading. (171)

Piaget wrote in 1977 that "in order for a child to understand something, he must construct it for himself, he must reinvent it" (qtd. in Lehr 454).

An old Chinese proverb widely quoted by educators states that "I hear, and I forget. I see, and I remember. I do, and I understand."

In spite of the wealth of research and accumulating knowledge about the development of spelling ability, classroom instruction in spelling has changed little since the twenties.

In 1977, Donald Graves compared spelling texts used in 1976 and 1969 and found little change in emphasis or content, and a dearth of exercises requiring students to perform realistic spelling tasks--to generate spelling on their own (Graves 86-91). Other researchers had

the same results (Emig 1763).

Several researchers have found evidence of instructional and frustration levels in spelling, as in reading, and question the use of a standard word list for a whole class. Others point out that formal spelling programs present a total of only 4,000 to 6,000 words, and literate persons read, write, and spell 50,000 to 70,000 words (Henderson and Templeton 316).

DiStefano and Hagerty write that:

> In probably no other area in the language arts is there such a discrepancy between what we know and what we teach as in spelling. Most elementary schools use spelling series and treat spelling as a subject separate from the other language arts. The spelling series dictates what words to teach without regard to children's language and background experiences. (373)

Even the very few voices raised in objection to the teaching of spelling without a formal word list nevertheless advocate use of a word list taken from children's writing and a general list of frequently used words such as the Dolch list in place of a standard spelling test. Other objections come from those who, like Groff, object to:

> . . . spelling programs in which children are simply encouraged to discover by themselves how to spell words correctly by inventing the spellings of words. (318)

However, the researchers who overwhelmingly support the concept of invented spelling and extensive opportunity for writing to increase spelling ability do not advocate a program quite so void of direction as those which concern Groff.

Donald Graves explored the process of writing with children aged

six through ten in a major study in 1972 through 1973. The implications of this study for the classroom are enormous, and Graves' name has become linked with the process of children's writing world-wide. The writing approach as outlined by Graves in Writing: Teachers and Children at Work, includes generous allotment of time for writing, individual conferences to discuss specific pieces of writing, and group conferences to discuss problems common to several students. Assessment of progress in writing and the conventions of writing: spelling, grammar, capitalization and punctuation, is accomplished through writing folders kept over time (178).

There is an emphasis on revision, editing, and publication which helps focus children's attention on the need for clarity and correctness to communicate ideas. Graves believes that spelling is important only so that the writer may put it behind him and focus on information and meaning, and because good spelling is the face shown to an audience.

According to Graves:

> Spelling is for writing. Children may achieve high scores on phonic inventories or weekly spelling tests. But the ultimate test is what the child does under "game" conditions, within the process of moving toward meaning. (193-194)

The holistic, process approach, then, seems to answer the question of the best way to present children with the opportunity to develop as spellers through writing.

Works Cited

Beers, Carol Strickland, and James Wheelock Beers. "Three Assumptions about Learning to Spell." Language Arts 58 (1981): 573-580.

Beers, James Wheelock and Carol Strickland Beers. "Vowel Spelling Strategies Among First and Second Graders." Language Arts 57 (1980): 166-172.

DiStefano, Phillip P., and Patricia J. Hagerty. "Teaching Spelling at the Elementary Level: A Realistic Perspective." The Reading Teacher 38 (1985): 373-377.

Emig, Janet. "Writing, Composition, and Rhetoric." The Encyclopedia of Educational Research. 1982 ed.

Gentry, J. Richard. "An Analysis of Developmental Spelling in GNYS AT WRK." The Reading Teacher 35 (1982): 192-200.

---. "Learning to Spell Developmentally." The Reading Teacher 34 (1981): 378-381.

Graves, Donald H. Writing: Teachers and Children at Work. Portsmouth: Heinemann. 1983.

Groff, Patrick. "The Implications of Developmental Spelling Research: A Dissenting View." The Elementary School Journal 86 (1986) 317-325.

Groves, Terri L. "Holistic Writing Strategies Recommended for Elementary Grades Kindergarten Through Eight." Thesis Southern Illinois University, 1984.

Henderson, Edmund. Teaching Spelling. Boston: Houghton, 1985.

Henderson, Edmund, and Shane Templeton. "A Developmental Perspective of Formal Spelling Instruction Through Alphabet, Pattern, and Meaning." The Elementary School Journal 86 (1986): 305-316.

Hillerich, Robert L. "Let's Teach Spelling--Not Phonetic Misspelling." Language Arts 54 (1977): 301-307.

Hodges, Richard E. "On the Development of Spelling Ability." Language Arts 59 (1982): 284-289.

Lehr, Fran. "Invented Spelling and Language Development." The Reading Teacher 39 (1986): 452-453.

Morris, Darrell, Laurie Nelson and Jan Perney. "Exploring the Concept of Spelling Instructional Levels Through the Analysis of Error-Types." The Elementary School Journal 87 (1986): 180-200.

Morris, Darrell, and Jan Perney. "Developmental Spelling as a Predictor of First-Grade Reading Achievement." The Elementary School Journal 84 (1984): 441-457.

Read, Charles. "Pre-School Children's Knowledge of English Phonology." Harvard Educational Review 41 (1971): 1-34.

Wood, Margo. "Invented Spelling." Language Arts 63 (1982): 707-717.

Zutell, Jerry. "Some Psycholinguistic Perspectives on Children's Spelling." Language Arts 55 (1978): 844-850.

Chapter III

Design of the Study

The project began on September 14, 1987, approximately three weeks after the beginning of school. All 19 students enrolled in the second grade class at Sheldon Grade School in Sheldon, Illinois were administered the Qualitative Inventory of Word Knowledge (QIWK), described in Chapter I of this paper. Three word lists from the Inventory were administered; the third grade list, the second grade list, and the first grade list, in that order. (For word lists, see Appendix A). The students were asked to listen carefully as the teacher read each word, used it in a sentence, and repeated it. Then they were to write the word. If the spelling was unknown to them, they were to write as much of the word as they could, using invented spelling, as described in Chapter I of this paper.

The next day, September 15, 1987, they were asked to write for fifteen minutes about a subject of their choice. Suggestions for topics were available for those who could not choose a topic of their own. Again, students were instructed to spell as much of an unknown word as they could.

Both the Inventory and the free writing sample were scored using a bigraph count (See Chapter I). Scores were then converted to percentages in order to compare them. The scores obtained from the Inventory were used for the determination of independent, instructional, and frustration levels.

Instruction in spelling then began, using the 1985 edition of the second grade spelling book published by Houghton Mifflin. Spelling lessons were presented daily, Monday through Thursday, with a weekly word list pre-test on Monday and a post-test on Friday of each week. Such instruction continued for a period of six weeks. At the end of that period, the Inventory was re-administered as before, another free writing sample was obtained and both tests were scored.

The students then received instruction in spelling as part of the holistic writing process program as described earlier, for an equal period of time, after which the Inventory was administered for the third time, and a third free writing sample was obtained and scored.

During the writing phase of the project, the children wrote daily, for time periods of 30 to 45 minutes, on topics of their choice. Individual and group conferences were held, and a list of words from the student's writing was attached to each student's work folder, in which all his writing was kept. The students were encouraged to learn to spell the words on their lists, and to add new words and cross off those they could spell. No testing or formal study of the words was done. Children were encouraged to use invented spelling, look unknown words up in the classroom dictionaries, ask a friend, or ask the teacher or other adult if available to help. When both student and teacher considered a piece of writing ready for publication, the student was asked to circle every word he believed to be misspelled, and to check each sentence for capital letters and correct punctuation. Then a

publishing conference was held and the teacher helped the child to correct any remaining errors in spelling, punctuation, and capitalization.

Publication was in the form of booklets, posters, and "hard-backed" books for which the author did illustrations and covers. The story was typed by the teacher, and an interview with the author was placed on the back cover, along with his picture. The book was then placed in the room library for class members to read, and the author was encouraged to read his book to other classes, teachers, janitors, the superintendent, principal, and any other listener he could find.

The second grade subjects in this study were, in general, representative of most groups at this school, which has a high percentage of students with low socio-economic status as defined by the number of families which qualify for free and reduced-price lunches. The class was well-balanced by sex and age, and received no formal spelling instruction in first grade.

Chapter IV

Results of the Study

An analysis of the data acquired from the testing reveals that hypothesis number one, that scores on the Quantitative Inventory of Word Knowledge, Levels 1, 2, and 3, would be significantly higher after instruction with a holistic writing approach, could not be supported.

Scores from the Quantitative Analysis of Word Knowledge given at the end of the standard textbook treatment period (Treatment 1) were compared to those obtained at the end of the holistic writing treatment period (Treatment 2). An Analysis of Variance was conducted to compare the results of the total group scores for Treatment 1 and Treatment 2. The total group consisted of 18 students' scores. The total number of points gained between the pre-test and the Treatment 1 test was 586. The average gain was 32.6. The total number of points gained between the Treatment 1 test and the Treatment 2 test was 461, and the average gain was 25.6.

The Analysis of Variance showed no significant difference due to treatment. The table for F shows F=5.51, at df 1 and 34. The F statistic obtained from the Analysis of Variance (1.65) is less than the value of F, which indicates that there is no significant difference due to the treatment. Table I summarizes the results of the Analysis of Variance (See page 20).

An Analysis of Variance was conducted on the scores from the Level 1 list from the Qualitative Inventory of Word Knowledge. The F statistic obtained was less than the value of F (5.51),

indicating no significant difference for the Level 1 list. The results are summarized in Table II.

TABLE I

Analysis of Variance

Total Group Scores QIWK

Source of Variance	SS	df	MS	F	P
Treatment	5877.8	1	5877.8	1.65	<.05
Error	123998.5	34	3542.8		
Totals	129876.3	35			

TABLE II

Analysis of Variance

Level 1 Scores QIWK

Source of Variation	SS	df	MS	F	P
Treatment	312	1	312	2.08	<.05
Error	5248	34	149.9		
Totals	5560	35			

An Analysis of Variance was conducted on the scores from the Level 2 list, and on those from the Level 3 list. Neither result showed significant difference due to treatment. The results are summarized in Tables III and IV.

TABLE III

Analysis of Variance

Level 2 Scores QIWK

Source of Variance	SS	df	MS	F	P
Treatment	1653.8	1	1653.8	3.33	<.05
Error	17394.5	34	497		
Totals	19048.3	35			

TABLE IV

Analysis of Variance

Level 3 Scores QIWK

Source of Variation	SS	df	MS	F	P
Treatment	342.2	1	342.2	.704	<.05
Error	17011.8	34	486.0		
Totals	17354.0	35			

The hypothesis that scores obtained by second graders on a bigraph count of a free writing sample would be significantly higher after instruction with a holistic writing treatment was also unsupported by the data.

The bigraph scores from the free writing samples were converted to percentages to adjust for varying word lengths, and subjected to an Analysis of Variance. Again, no significant difference due to treatment was found. The results are summarized in Table V.

TABLE V

Analysis of Variance

Bigraph Scores--Free Writing Samples

Sources of Variation	SS	df	MS	F	P
Treatment	121.0	1	121.0	1.45	<.05
Error	2904.3	34	83.0		
Totals	3025.3	35			

The third hypothesis, that the number of words attempted on a free writing sample would be signifcantly higher after instruction with a holistic writing treatment was supported by the data. An Analysis of Variance was conducted on the number of words attempted on the free writing samples taken after Treatment 1 and Treatment 2. The results, summarized in Table VI, show significant difference due

to treatment. The table for F shows F=5.51 at df 1 and 34. The F statistic obtained on the Analysis, 20.8, shows significant difference due to Treatment 2, instruction with a holistic approach.

TABLE VI

Analysis of Variance

Words Attempted--Free Writing Sample

Source of Variance	SS	df	MS	F	P
Treatment	90200.1	1	90200.1	20.8	<.05
Error	151752.1	34	4335.7		
Totals	241952.2	35			

Student scores from each administration of the Qualitative Inventory of Word Knowledge were used to place students at their instructional levels for spelling. Table VII on page 24 shows the results of the placements.

Student percentage scores and percentage point gains for the three administrations of the Qualitative Inventory of Word Knowledge are shown in Table VII. Table VIII shows the number of words attempted for each free-writing sample, and the gains and losses after Treatments 1 and 2.

TABLE VII

Instructional Levels

Student No.	Pretest		Treatment 1		Treatment 2	
	Level	Percent	Level	Percent	Level	Percent
1	*	39	1	62	1	55
2	2	59	2	57	3	65
3	3	67	3	75	3	81
4	1	59	2	63	3	81
5	2	69	3	77	3	73
6	2	57	2	58	3	69
7	3	52	3	55	3	61
8	1	52	1	67	1	67
9	1	52	1	60	3	56
10	1	59	1	67	3	53
11	1	52	2	56	2	53
12	2	53	3	63	3	68
13	1	53	1	57	1	66
14	1	58	1	67	3	55
15	1	69	2	52	3	60
16	3	89	3	86	3	82
17	*	24	1	60	3	55
18	3	77	**	92	**	91

* Below Level 1

** Below Level 2

Independent Level	90-100 percent
Instructional Level	50-89 percent
Frustration Level	0-49 percent

TABLE VIII

Total Percent Scores

Percentage Point Gains

Qualitative Inventory of Word Knowledge
Levels 1-3

Student No.	Pretest	Treatment 1	Gain	Treatment 2	Gain
1	34	47	13	47	0
2	60	65	5	72	7
3	71	82	5	89	7
4	53	63	10	71	8
5	69	78	9	83	5
6	58	65	7	77	12
7	55	58	3	66	8
8	44	50	6	50	0
9	47	54	7	55	1
10	47	51	4	61	10
11	41	57	16	63	7
12	73	69	-4	73	4
13	36	45	9	50	5
14	37	51	14	60	9
15	50	61	11	69	8
16	91	90	-1	90	0
17	24	40	16	60	20
18	86	93	7	95	2

TABLE IX

Number of Words Attempted

Free Writing Sample

Student No.	Words Attempted Pretest	Words Attempted Treatment 1	Gain or Loss	Words Attempted Treatment 2	Gain or Loss
1	186	104	-82	201	+97
2	108	107	-1	393	+286
3	146	148	+2	211	+63
4	93	11	+18	210	+99
5	179	97	-82	60	-37
6	109	123	+14	243	+120
7	133	47	-86	241	+194
8	146	82	+64	182	+100
9	154	113	-41	186	+73
10	151	86	-65	284	+198
11	34	53	+17	87	+34
12	145	150	+5	393	+243
13	98	135	+37	110	-25
14	146	59	-88	156	+97
15	127	106	+21	390	+284
16	90	61	-29	161	+90
17	123	91	-32	118	+27
18	284	93	-191	197	+104
Totals	2452	1766	-686	2047	+3813

Chapter V

Limitations of the Study

As the study progressed and the results were tabulated, it became apparent that the study was subject to limitations which may have affected the outcome to a significant degree. They are:

1. Number of students involved. Scores of only eighteen students were used in the study. A larger group would have proved a broader sampling of second grade students and given strength to the findings.

2. Length of time for study. Each treatment period for this study was only six weeks long. The writing process program takes some time to put into place. Writing independently on topics of their own choosing, and inventing their own spellings for unknown words is new to most students. A good deal of time is required to "get the program going" and to accustom the students to the new procedures.

3. Design of the study. It was necessary to conduct the research in a linear design, with one treatment following the other with the same group of students. This design, made necessary by the inaccessibility of a control group, was not satisfactory, and led to the time constraints mentioned above. It is the opinion of the researcher that, had the order of treatment periods been reversed, the results would have been reversed as well. The first six to nine weeks of the school year are a period of rapid progress and this may have affected the results.

Conclusions

The results of this study indicate that instruction in spelling using a holistic writing approach does not significantly increase the scores of second graders on Level 1, 2, or 3 of the Qualitative Inventory of Word Knowledge. However, scores did increase by an average of 25.6 points. It is interesting to note that although the writing treatment did not show significant difference, neither did the standard textbook approach. (See Appendix A.)

The results also indicate that spelling instruction using a holistic writing approach significantly increases the willingness of second graders to attempt to spell unknown words. The number of words attempted on a free writing sample after instruction with a standard spelling textbook approach actually decreased, while the number attempted after the writing treatment increased by nearly fifty percent. (See Table VIII on page 23.)

Determination of student instructional levels (50-89%) using Pretest, Treatment 1, and Treatment 2 scores reveals that movement into higher instructional levels was more frequent after the holistic writing treatment, Treatment 1. (See Table VII, page 21.)

On the Pretest, 2 students (11%) were not yet instructional at the first grade level, 8 (44%) were instructional at Grade 1, 4 (22%) were placed at Grade 2, 4 (22%) were placed at Grade 2, and none was instructional above Grade 3.

After Treatment 2, the holistic writing treatment, 3 students (17%) were still at the first grade level, 1 (.05%) was at the second

grade level, and impressive total of 13 (72%) were now instructional at the third grade level, and one student (.05%) was placed above third grade level.

Implications of the Study

1. Most of the sources cited in Chapter II suggest that it is essential to provide ample opportunity for children to write in order to improve spelling ability. Although there was no significant improvement in children's spelling achievement due to their involvement in a holistic writing program, this study indicates that such a program can increase children's confidence in their ability to spell unknown words. When inventing spelling, children's attention is focused on the sounds and letters which comprise words. Increased awareness of sound and letter patterns will result. When children invent spelling, they invent phonics as well, thus increasing word attack skills and therefore reading ability (Wood 715).

2. The range of at least five grades in instructional level evidenced in this study indicates that instruction with one standard word list per grade level will not meet the needs of the majority of students. Spelling instruction should be individualized, with spelling lists based on an analysis of errors made by children in their free writing.

3. Although correct spelling is the ultimate goal of spelling instruction, much can be learned from the types of errors made by students. Many of the error types identified by Charles Read in Pre-School Children's Knowledge of English Phonology were in evidence in this study.

In the children's attempts to spell unknown words, the nasals, n and m were often omitted when they came before a consonant. For example, BUP for bump, WAT for want, SED for send, and PLAT for plant appeared frequently.

The redundant vowel was very often omitted in the words batter (BATR), sudden (SUDDN), and center (CENTR), and when presented with TR and DR blends, children tended to leave out the d and t and spell the affriction, so drive was spelled JRIVE, try CHRY, and train CHRAIN, revealing subtle perceptions of speech sounds and the areas of the mouth where they are formed.

A careful observation of the errors in the children's spellings can point out where instruction should be focused. Many errors in doubling consonants (GRABD for grabbed, TRAPED for trapped) or the omission of silent e (PLAT for plate, WIS for wise) indicates that students may benefit from direct instruction.

Another benefit of an analysis of errors over time is the evidence of progress. Table X shows sample spellings from the three administrations of the Quantitative Inventory of Word Knowledge. Each student's spellings for each administration of the test are included in Appendix B.

Recommendations

Although the major hypotheses, that scores on a Qualitative Inventory of Word Knowledge and a free writing sample would increase significantly after instruction with a holistic writing approach, were not supported by the data, the study did show that movement through

instructional levels for spelling and willingness to attempt to spell unknown words were significantly affected by the opportunity to write.

Further research with a well-designed study free of time constraints is needed before a further determination of the role of writing in spelling instruction can be made. This study should be conducted over a full school year, and include larger samples of student population for the treatment and control groups.

TABLE X

Sample Spellings

Qualitative Inventory of Word Knowledge

Pretest	Treatment 1	Treatment 2
trapt	traped	trapped
batr	battr	batter
chan	chian	chain
neuy	neay	knee
sund	suddn	sudden
casen	shasing	chasing
screm	sceram	scream
cattra	chsae	chase
patrin	plet	plate
wiher	wich	wish
chaisn	chaseing	chasing
steeping	steping	stepping
basbl	basbol	baseball

Works Consulted

Allred, Ruel. Spelling. Washington, D.C.: National Education Association, 1977.

---. Spelling Trends: Content and Methods. Washington, D.C.: National Education Association, 1984.

Beers, Carol Strickland, and James Wheelock Beers. "Three Assumptions About Learning to Spell." Language Arts 58 (1981): 573-580.

Beers, James Wheelock. "High and Low Frequency Words: How First and Second Graders Spell Them and Why." International Reading Association Conference, Anaheim, 13 May 1976.

Beers, James Wheelock and Carol Strickland Beers. "Vowel Spelling Strategies among First and Second Graders: A Growing Awareness of Written Words." Language Arts 57 (1980): 166-172.

Boyd, Gertrude A., and Gene E. Talbert. Spelling in the Elementary School. Columbus, Ohio; Merrill, 1971.

Calkins, Lucy McCormick. "How Reading Can Inspire Writing." Learning 86 January 1986: 67-72.

Chenfield, Mimi Brodsky. "Words of Praise: Honey on the Page." Language Arts 62 (1985): 266-268.

Cramer, Ronald. "An Investigation of First-Grade Spelling Achievement." Elementary English 70 (1970): 230-237.

DiStefano, Phillip P. and Patricia J. Hagerty. "Teaching Spelling at the Elementary Level: A Realistic Perspective." The Reading Teacher 38 (1985): 373-377.

Downing, John, Robert M. Coughlin, and Gene Rich. "Children's Invented Spellings in the Classroom." The Elementary School Journal 86 (1986): 295-303.

Ehri, Linnea C. "Learning to Read and Spell Words." Journal of Reading Behavior 34 (1987): 5-31.

Ehri, Linnea C. and Lee S. Wilce. "Does Spelling Help Reading?" Reading Research Quarterly (Winter 1987): 48-65.

Emig, Janet. "Writing, Composition, and Rhetoric." The Encyclopedia of Educational Research. 1982 ed.

Forester, Anne D. "Learning to Spell by Spelling." Theory Into Practice 14 (1978): 186-192.

Freyberg, P. S. "A Comparison of Two Approaches to the Teaching of Spelling." British Journal of Educational Psychology 34 (1964): 178-186.

Frith, Uta, ed. Cognitive Processes in Spelling. London: Academic Press. 1980.

Froese, Victor. "Understanding Writing." Language Arts 85 (1978): 811-815.

Frymier, Jack. "A Study of Children's Interest in Words. "Journal of Curriculum and Supervision (Winter 1987): 128-151.

Gentry, J. Richard. "An Analysis of Developmental Spelling in FNYS AT WRK." The Reading Teacher 35 (1982): 192-200.

Gentry, J. Richard. "Getting Kids to Write in Kindergarten and First Grade." Early Years K-8 Nov/Dec 1985: 34-35.

Gentry, J. Richard. "Learning to Spell Developmentally." The Reading Teacher 34 (1981): 378-381.

---. "You Can Analyze Developmental Spelling." Early Years/K-8 May 1985: 44-45.

Gentry, J. Richard and Edmund H. Henderson. "Three Steps to Teaching Readers to Spell." The Reading Teacher 31 (1978): 632-637.

Graves, Donald H. "Spelling Texts and Structural Analysis Methods." Language Arts 54 (1977): 86-91.

---. "Where Have All The Teachers Gone?" Language Arts 58 (1981): 492-497.

---. Writing: Teachers and Children at Work. Portsmouth: Heinemann. 1983.

Groff, Patrick. "The Implications of Developmental Spelling Research: A Dissenting View." The Elementary School Journal 86 (1986): 317-325.

Groves, Terri L. "Holistic Writing Strategies Recommended for Elementary Grades Kindergarten Through Eight." Thesis Southern Illinois University, 1984.

Hall, Susan, and Chris Hall. "It Takes a Lot of Letters to Spell 'erx'." Language Arts 61 (1967): 822-827.

Hanna, Paul R. et al. "Linguistic Cues for Spelling Development." Elementary English 44 (1967): 862-865.

Harris, Maud. "Visualization and Spelling Competence." Journal of Developmental Education 9 (1986): 2-5, 31.

Henderson, Edmund. Teaching Spelling. Boston: Houghton. 1985.

Henderson, Edmund and James W. Beers, ed. Developmental and Cognitive Aspects of Learning to Spell: A Reflection of Word Knowledge. Newark, DE: International Reading Association. 1980.

Henderson, Edmund and Shane Templeton. "A Developmental Perspective of Formal Spelling Instruction Through Alphabet, Pattern, and Meaning." The Elementary School Journal 86 (1986): 305-316.

Hillerich, Robert L. "Let's Teach Spelling--Not Phonetic Misspelling." Language Arts 54 (1977): 301-307.

---. "That's Teaching Spelling." Educational Leadership 39 (1982): 615-617.

Hillocks, George Jr. "Synthesis of Research on Teaching Writing." Educational Leadership 44 (1987): 71-81.

Hodges, Richard E. "On the Development of Spelling Ability." Language Arts 59 (1982): 284-289.

Horn, T. D. "Phonetics and Spelling." Elementary School Journal 57 (1957): 424-432.

---. "Test, Then Study in Spelling." Instructor December 1976: 81-82.

Lancaster, Willie, Laurie Nelson, and Darrell Morris. Invented Spellings in Room 112: A Writing Program for Low-Reading Second Graders." The Reading Teacher 35 (1982): 906-910.

Lehr, Fran. "Invented Spelling and Language Development." The Reading Teacher 39 (1986): 452-453.

Marino, Jacqueline L. "What Makes a Good Speller?" Language Arts 57 (1980): 173-177.

Morris, Darrell, Laurie Nelson, and Jan Perney. "Exploring the Concept of Spelling Instruction Levels Through the Analysis of Error-Types." The Elementary School Journal 87 (1986): 180-200.

Morris, Darrell, and Jan Perney. "Developmental Spelling as a Predictor of First-Grade Reading Achievement." The Elementary Journal 84 (1984): 441-457.

Paul, Rhea. "Invented Spellings in Kindergarten. Young Children 31 (1976): 195-200.

Personke, Carl and Lester Knight. "Proofreading and Spelling: A Report and a Program." Elementary English 44 (1967): 768-774.

Read, Charles. "Pre-School Children's Knowledge of English Phonology." Harvard Educational Review 41 (1971): 1-34.

Read, Charles and Richard Hodges. "Spelling." The Encyclopedia of Educational Research. 1982 ed.

Richgels, Donald J. "Experimental Reading with Invented Spelling: A Preschool and Kindergarten Method." The Reading Teacher 40 (1987): 522-529.

Rudman, Marsha. "Informal Spelling in the Classroom: A More Effective Approach." The Reading Teacher 26 (1973): 602-604.

Rudorf, E. High. "Review of 'An Investigation of First-Grade Spelling Achievement' by R. L. Cramer." Elementary English 70 (1970): 238-240.

Rule, Rebecca. "The Spelling Process: A Look at Strategies." Language Arts 59 (1982): 379-384.

Ruth, Leo. "Reading Children's Writing." The Reading Teacher 41 (1987): 756-760.

Schlagel, Robert Clark. "Informal and Qualitative Assessment of Spelling." The Pointer 30 (Winter 1986): 30-32.

Sears, Nedra C. and Dale M. Johnson. "The Effects of Visual Imagery on Spelling Performance and Retention Among Elementary Students." Journal of Educational Research 79 (1986): 230-233.

Strackbein, Deanna, and Montague Tillman. "The Joy of Journals--With Reservations." Journal of Reading 31 (1987): 321-325.

Wood, Margo. "Invented Spelling." Language Arts 59 (1982): 707-717.

Yule, Valerie. "The Design of Spelling to Match Needs and Activities." Harvard Educational Review 56 (1986): 178-197.

Zutell, Jerry. "Some Psycholinguistic Perspectives on Children's Spelling." Language Arts 55 (1978): 844-850.

APPENDIX A

Calculations
Analysis of Variance
Total Scores

1.	Grand Total (Sum of X1)+(Sum of X2)	9568
2.	Correction Factor GT/(n1+n2)	2542961.7
3.	Sum of Squares Total (SST) (Sum of $X1^2$)+(Sum of $X2^2$)-C	129876.3
4.	Sum of Squares Due to Treatment (SSTr) (Sum of $X1)^2/n1$+(Sum of $X2)^2/n2$-C	5877.8
5.	Sum of Squares Due to Error (SSE) SSE=SST-SSTr	123998.5
6.	Mean Square Treatment SSTr/1	5877.8
7.	Mean Square Error(MSE) SSE/(n1+n2-ng-1)	3542.8
8.	F statistic MSTr/MSE	1.65

Table for F of .975
Numerator df=1, denominator df=34
F=5.51

Since 1.65 is greater than 1.65, treatment made no significant difference

Calculations
Analysis of Variance
Level 1 Scores

1.	Grand Total ((Sum of X1)+(Sum of X2)	2718
2.	Correction Factor GT/ (n1+n2)	205209
3.	Sum of Squares Total (SST) (Sum of $X1^2$)+(Sum of $X2^2$)-C	5560
4.	Sum of Squares Due to Treatment (SSTr) $(\text{Sum of X1})^2/n1+(\text{Sum of X2})^2/n1-C$	312
5.	Sum of Squares Due to Error (SSE) SSE=SST-SSTr	5248
6.	Mean Square Treatment(MSTr) SSTr/1	312
7.	Mean Square Error (MSE) SSE/n1+n2-ng-1)	149.9
8.	F Statistic MSTr/MSE	2.08

Table for F of .975
Numerator df=1, denominator df=34
F=5.51

Since 5.51 is greater than 2.08, treatment made no significant difference

Calculations
Analysis of Variance
Level 2 Scores

1.	Grand Total (Sum of X1)+(Sum of X2)	3484
2.	Correction Factor GT/(n1+n2)	33717.7
3.	Sum of Squares Total (SST) (Sum of $X1^2$)+(Sum of $X2^2$)-C	19048.3
4.	Sum of Squares Due to Treatment (SSTr) $(\text{Sum of X1})^2/n1+(\text{Sum of X2})^2/n1-C$	1653.8
5.	Sum of Squares Due to Error (SSE) SSE=SST-SSTr	17394.5
6.	Mean Square Treatment (MSTr) SSTr/1	1653.8
7.	Mean Square Error (MSE) SSE/n1+n2-ng-1)	497
8.	F Statistic MSTr/MSE	3.33

Table for F of .975
Numerator df=1, denominator df=34
F=5.51

Since 5.51 is greater than 3.33, treatment made no significant difference

Calculations
Analysis of Variance
Level 3 Scores

1.	Grand Total (Sum of X1)+(Sum of X2)	3367
2.	Correction Factor GT/(n1+n2)	314908
3.	Sum of Squares Total (SST) (Sum of $X1^2$)+(Sum of $X2^2$)-C	17354
4.	Sum of Squares Due to Treatment (SSTr) $(\text{Sum of X1})^2/n1+(\text{Sum of X2})^2/n2-C$	342.2
5.	Sum of Squares Due to Error (SSE) SSE=SST-SSTr	17011.8
6.	Mean Square Treatment (MSTr) SSTr/1	342.2
7.	Mean Square Error (MSE) SSE/(n1+n2-ng-1)	486
8.	F Statistic MSTr/MSE	.704

Table for F of .975
Numerator df=1, denominator df= 34
F= 5.51

Since 5.51 is greater than .704, treatment made no significant difference

Calculations
Analysis of Variance
Free Writing Sample Scores

1.	Grand Total (Sum of X1)+(Sum of X2)	3034
2.	Correction Factor GT/(n1+n2)	255698.7
3.	Sum of Squares Total (SST) (Sum of $X1^2$)+(Sum of $X2^2$)-C	3025.3
4.	Sum of Squares Due to Treatment (SSTr) $(\text{Sum of X1})^2/n1+(\text{Sum of X2})^2/n2-C$	121.02
5.	Sum of Squares Due to Error (SSE) SSE=SST-SSTr	2904.28
6.	Mean Square Treatment (MSTr) SSTr/1	121.02
7.	Mean Square Error (MSE) SSE/(n1+n2-ng-1)	82.97
8.	F Statistic MSTr/MSE	1.45

Table for F of .975
Numerator df=1, denominator df+34
F=5.51

Since 5.51 is greater than 1.45, treatment made no significant difference

Calculations
Number of Words Attempted
Free Writing Sample

1.	Grand Total (Sum of X1)+(Sum of X2)	5354
2.	Correction Factor GT/(n1+n2)	796258.7
3.	Sum of Squares Total (SST) (Sum of $X1^2$)+(Sum of $X2^2$)-C	241952.3
4.	Sum of Squares Due to Treatment (SSTr) $(\text{Sum of X1})^2/n1+(\text{Sum of X2})^2/n2-C$	90200.1
5.	Sum of Squares Due to Error (SSE) SSE=SST-SSTr	151752.1
6.	Mean Square Treatment(MSTr) SSTr/1	90200.1
7.	Mean Square Error (MSE) MSTr/MSE	4335.7
8.	F Statistic MSTr/MSE	20.8

Table for F of .975
Numerator df=1, denominator df=34
F=5.51

Since 20.8 is greater than 5.51, treatment made a significant difference

Calculations
Analysis of Variance
Total Scores--Pretest and Treatment 1

1.	Grand Total (Sum of X1)+(Sum of X2)	8522
2.	Correction Factor GT/(n1+n2)	2017346.7
3.	Sum of Squares Total (SST) (Sum of $X1^2$)+(Sum of $X2^2$)-C	126934.3
4.	Sum of Squares Due to Treatment (SSTr) (Sum of X1)^2/n1+(Sum of X2)^2/n2-C	9538.8
5.	Sum of Squares Due to Error (SSE) SSE=SST-SSTr	117395.5
6.	Mean Square Treatment (MSTr) SSTr/1	9538.8
7.	Mean Square Error (MSE) SSE/n1+n2-ng-1)	3354.1
8.	F Statistic MSTr/MSE	2.84

Table for F of .975
Numerator df=1, denominator df=34
F=5.51

Since 5.51 is greater than 2,84, treatment made no significant difference.

Dear Parents,

During this school year I will be taking classes and writing a final paper to finish my Master's Degree at Olivet. During the fall I will be making a study in my classroom to determine if spelling instruction can be improved with the use of a writing program rather than a spelling textbook. Next week I will give the class a spelling test, then we will begin using the Houghton Mifflin spelling book. We'll have weekly lists, a pretest on Monday and a final test on Friday of each week. I'll send home a word list for the next week every Friday. If your child studies the list at home, sign the coupon at the bottom and have him return it to school to earn an extra sticker. Stickers will also be given for perfect spelling tests.

At the end of six weeks, I will test the class again, and then begin to teach spelling through writing. The children will write on any subject they choose for about 30 minutes each day, spelling unknown words as best they can. I will have individual conferences with them to discuss their writing and spelling, and when I see a need, group conferences will be held to discuss a common problem. At the end of another six weeks, I'll test for the third time, and compare the results. The tests will in no way affect your child's grades.

When my research is complete I'll let you know how it came out! Thanks for your cooperation!

L. Hafstrom

QUALITATIVE INVENTORY OF WORD KNOWLEDGE

Grade Level 1	Grade Level 2	Grade Level 3
girl	traded	send
want	cool	gift
plane	beaches	rule
drop	center	trust
when	short	soap
trap	trapped	batter
wish	thick	knee
cut	plant	mind
bike	dress	scream
trip	carry	sight
flat	stuff	chain
ship	try	count
drive	crop	knock
fill	year	caught
sister	chore	noise
bump	angry	careful
plate	chase	stepping
mud	queen	chasing
chop	wise	straw
bed	drove	nerve
	cloud	thirsty
	grabbed	baseball
	train	circus
	shopping	handle
	float	sudden

APPENDIX B

INDIVIDUAL CHILDREN'S SPELLINGS

LEVEL 1

QUALITATIVE INVENTORY OF WORD KNOWLEDGE

SCHLAGEL WORD LIST

Level 1

Student 1

Word	Sept. Spelling	Oct. Spelling	Dec. Spelling
want	wot	wont	wan
plane	pan	plan	plani
drop	gop	dop	drolp
when	wan	wen	wen
trap	cap	chap	trait
wish	wis	wis	wis
cut	kot	--	--
bike	bik	bic	biek
trip	wib	cip	tiep
flat	fat	--	fait
ship	sip	sip	sipe
drive	biv	dic	briv
fill	fil	fel	fail
sister	sib	sisdr	sibew
bump	bop	bup	bup
plate	bat	plat	plaet
mud	mob	--	--
chop	coip	cop	coip
bed	bid	--	--
	39%	62%	55%
		+23	-7

SCHLAGEL WORD LIST

Level 1

Student 2

Word	Sept. Spelling	Oct. Spelling	Dec. Spelling
want	wont	wont	--
plane	plan	plan	plan
drop	--	--	--
[illegible]	wein	win	--
trap	--	--	--
wish	wich	wich	--
cut	--	--	--
bike	--	--	--
trip	--	--	--
flat	--	--	--
[illegible]	chip	--	--
drive	dive	--	--
fill	fall	fel	fel
sister	sistr	sistr	--
bump	bup	--	--
plate	plot	plat	--
mud	mob	--	--
chop	--	--	--
bed	--	--	--
	73%	84%	95%
	+11	+11	

SCHLAGEL WORD LIST

Level 1

Student 3

Word	Sept. Spelling	Oct. Spelling	Dec. Spelling
want	--	--	--
plane	plain	plan	plain
drop	--	--	--
when	wean	wean	--
trap	--	--	--
wish	wsih	--	--
cut	--	--	--
bike	--	--	--
trip	triap	--	--
flat	--	--	--
ship	--	--	--
drive	--	--	--
fill	full		--
sister	fell		--
bump	sitire	--	--
plate	--	--	plaet
mud	mudl	--	--
chop	choop	--	--
bed	--	bad	--
	79%	90%	94%
		+11	+3

SCHLAGEL WORD LIST

Level 1

Student 4

Word	Sept. Spelling	Oct. Spelling	Dec. Spelling
want	X	whet	--
plane	pain	plan	pane
drop	dop	trpo	--
when	--	--	--
trap	trp	cap	drap
wish	wih	--	whish
cut	--	--	--
bike	bic	--	--
trip	trp	--	--
flat	fat	--	fat
ship	--	--	--
drive	dive	trive	--
fill	fiue	fell	fall
sister	sisr	sitr	sittr
bump	bup	--	bup
plate	plat	plat	pael
mud	--	--	--
chop	X	--	--
bed	--	--	--
	59%	77%	79%
	+18	+2	

SCHLAGEL WORD LIST

Level 1

Student 5

Word	Sept. Spelling	Oct. Spelling	Dec. Spelling
want	--	waint	whant
plane	plan	--	--
drop	--	--	--
when	win	twin	wen
trap	--	--	--
wish	--	--	--
cut	kut	--	--
bike	bicke	--	--
trip	--	--	--
that	--	--	--
ship	sipe	--	--
drive	--	dry	--
fill	--	fell	fell
sister	site	siter	--
bump	--	--	--
plate	--	--	--
mud	--	--	--
chop	--	--	--
bed	--	--	--
	84%	87%	95%
	+3	+8	

SCHLAGEL WORD LIST

Level 1

Student 6

Word	Sept. Spelling	Oct. Spelling	Dec. Spelling
want	w	what	whan
plane	plaen	plaen	--
drop	--	grop	--
when	wind	win	--
trap	--	--	--
wish	wich	--	--
cut	--	--	--
bike	--	--	--
trip	--	--	--
flat	--	faet	--
ship	--	--	--
drive	giav	griov	--
fill	flil	fell	faile
sister	--	--	--
bump	buop	bunp	--
plate	plat	plaet	plnte
mud	--	--	--
chop	--	--	--
bed	ded	--	--
	12%	76%	92%
	+4	+16	

SCHLAGEL WORD LIST

Level 1

Student 7

Word	Sept. Spelling	Oct. Spelling	Dec. Spelling
want	ount	wont	wut
plane	plan	pan	pane
drop	dope	--	--
when	win	win	wen
trap	--	--	--
wish	wins	wis	wich
cut	cute	--	--
bike	dik	bik	--
trip	--	--	--
flat	--	--	--
ship	--	stip	chip
drive	dive	--	--
fill	file	fel	fel
sister	sistr	sist	sistr
bump	--	--	bup
plate	plat	plat	plat
mud	mub	--	--
chop	tcop	thop	--
bed	de	--	--
	63%	74%	79%
		+11	+5

SCHLAGEL WORD LIST

Level 1

Student 8

Word	Sept. Spelling	Oct. Spelling	Dec. Spelling
want	w	--	wat
plane	plan	plan	--
drop	dag	dop	dop
when	win	win	whin
trap	--	shap	taed
wish	wis	--	wich
cut	l	--	--
bike	bik	--	--
trip	tri	tip	tip
flat	--	--	fate
ship	cop	--	shipe
drive	div	die	dive
fill	fil	feel	fall
sister	sistr	sir	stir
bump	bup	bup	bup
plate	plat	plat	plat
mud	--	--	--
chop	cop	shop	--
bed	--	--	--
	58%	67%	67%
	+9	+0	

SCHLAGEL WORD LIST

Level 1

Student 9

Word	Sept. Spelling	Oct. Spelling	Dec. Spelling
girl			
want	--	went	--
plane	pant	plan	paln
drop	gop	Trip	trop
when	what	chain	win
trap	tarps	--	--
wish	wict	--	--
cut	--	--	--
bike	bick	bick	--
trip	thrip	chep	dape
flat	faot	fit	fatt
ship	--	--	sicp
drive	govaa	jrivo	trve
fill	full	fell	--
sister	sits	strdr	setre
jump	lup	--	bob
plate	pllat	plat	pate
mud	mut	--	--
chop	--	tup	tope
bed	--	--	--
	52%	60%	59%
	+8	-1	

SCHLAGEL WORD LIST

Level 1

Student 10

Word	Sept. Spelling	Oct. Spelling	Dec. Spelling
want	yant	--	watn
plane	plan	plan	--
drop	drap	brop	--
when	win	wen	win
trap	--	tap	--
wish	yis	wis	wis
cut	cot	--	--
bike	bic	bik	bicke
trip	tip	tip	--
flat	--	--	--
ship	cop	sip	sip
drive	div	bive	--
fill	fil	fil	--
sister	sistr	sitr	sitru
bump	bup	--	--
plate	plat	plat	plat
mud	--	--	--
chop	cop	top	cop
bed	--	--	--
	59%	67%	80%
	+8	+13	

SCHLAGEL WORD LIST

Level 1

Student 11

Word	Sept. Spelling	Oct. Spelling	Dec. Spelling
want	wut	--	wat
plane	pun	--	--
drop	jop	grop	grop
when	wen	sin	win
trap	tap	cap	--
wish	wih	with	--
cut	kut	--	--
bike	--	blue	--
trip	--	thip	--
flat	fat	--	blat
ship	hep	--	--
drive	jig	griy	grije
fill	fil	fell	--
sister	sist	sisr	sisit
bump	bup	buba	--
plate	pult	--	--
mud	--	--	--
chop	top	--	thop
bed	bub	--	--
	52%	69%	79%
	+17	+10	

SCHLAGEL WORD LIST

Level 1

Student 12

Word	Sept. Spelling	Oct. Spelling	Dec. Spelling
want	went	--	--
plane	plan	plan	--
drop	grop	--	--
when	wen	wean	were
trap	thap	chrap	chap
wish	wiss	wihs	--
cut	cute	--	--
bike	--	--	bick
trip	thip	--	--
flat	--	--	--
ship	--	--	--
drive	grive	--	--
fill	--	fell	fell
sister	sisdir	--	--
bump	dupe	--	--
plate	plat	plat	plat
mud	mude	--	--
chop	--	--	--
bed	--	--	--
	75%	30%	88%
	+11	+2	

SCHLAGEL WORD LIST

Level 1

Student 13

Word	Sept. Spelling	Oct. Spelling	Dec. Spelling
want	yot	wut	wonte
plane	plan	--	--
drop	jrip	jripe	brope
when	wnn	hine	wine
trap	hrap	chape	trape
wish	yis	yiske	wicke
cut	kut	--	ckute
bike	bik	--	--
trip	trik	chripe	tripe
flat	--	--	flate
ship	sip	sipe	sipe
drive	jrive	grivne	--
fill	filue	fele	fole
sister	sisre	sistr	sistre
bump	bupe	bupe	bupe
plate	--	--	--
mud	mu	--	mude
chop	hirp	cope	ckope
bed	bad	--	--
	53%	57%	66%
	+4	+9	

SCHLAGEL WORD LIST

Level 1

Student 24

Word	Sept. Spelling	Oct. Spelling	Dec. Spelling
want	wut	wut	wut
plane	pan	pan	plan
drop	gop	trop	trop
when	win	win	wene
trap	--	--	--
wish	wis	--	--
cut	--	--	--
bike	bik	bik	bick
trip	thip	--	--
that	--	hat	--
ship	sip	--	--
drive	jiv	triv	trive
fill	fil	fell	fell
sister	sistr	sistr	sitsr
bump	bup	bup	bup
plate	pat	pat	--
mud	mub	--	--
chop	jap	trop	--
bed	--	--	--
	58%	67%	77%
	+9	+10	

SCHLAGEL WORD LIST

Level 1

Student 15

Word	Sept. Spelling	Oct. Spelling	Dec. Spelling
want	--	wunt	wunt
plane	pan	plan	plan
drop	dop	--	--
when	win	win	win
trap	--	--	--
wish	wih	--	--
cut	cot	--	--
bike	bik	--	--
trip	--	--	--
flat	--	--	--
ship	hip	--	--
drive	driv	div	driv
fill	fil	fel	fel
sister	sitr	sistr	sistr
bump	bup	bup	--
plate	plat	plat	plat
mud	--	--	--
chop	top	thop	--
bed	--	--	--
	60%	75%	84%
	+6	+9	

SCHLAGEL WORD LIST

Level 1

Student 16

Word	Sept. Spelling	Oct. Spelling	Dec. Spelling
want	woant	--	--
plane	--	--	--
drop	--	--	--
when	win	--	--
trap	--	--	--
wish	--	--	--
cut	--	--	--
bike	--	--	--
trip	--	--	--
flat	--	--	--
ship	--	--	--
drive	--	--	--
fill	--	fell	fell
sister	--	--	--
bump	--	--	--
plate	--	--	--
mud	--	--	--
chop	--	--	--
bed	--	--	--
	96%	98%	98%
		+2	+0

SCHLAGEL WORD LIST

Level 1

Student 17

Word	Sept. Spelling	Oct. Spelling	Dec. Spelling
want	wiheer	--	went
plane	parryny	plen	platn
drop	hats	papssyp	dop
when	wahw	win	win
trap	pamy	taps	trip
wish	wiher	wich	--
cut	camlemie	--	--
bike	--	--	--
trip	*	plep	trap
flat	camesic	faat	fatt
ship	sham	--	--
drive	irina	cive	dive
fill	pfph	falrl	full
sister	gina	saer	sitsr
bump	bana	bup	bup
plate	pana	patst	plat
mud	manu	--	--
chop	chan	--	--
bed	--	--	--
	24%	60%	71%
	+36	+11	

SCHLAGEL WORD LIST

Level 1

Student 18

Word	Sept. Spelling	Oct. Spelling	Dec. Spelling
want	--	--	--
plane	plain	plain	--
drop	--	--	--
when	--	--	--
trap	--	--	--
wish	--	--	--
cut	--	--	--
bike	--	--	--
trip	--	--	--
flat	--	--	--
ship	--	--	--
drive	--	dry	--
fill	--	fell	fell
sister	--	--	--
bump	--	--	--
plate	--	--	--
mud	mod	--	--
chop	--	--	--
bed	--	--	--
	95%	91%	98%
		-4	+7

INDIVIDUAL CHILDREN'S SPELLINGS

LEVEL 2

QUANTITATIVE INVENTORY OF WORD KNOWLEDGE -

SCHLAGEL WORD LIST

Level 2

Student 1

Word	Sept. Spelling	Oct. Spelling	Dec. Spelling
traded	jab	cade	tradey
cool	--	--	--
beaches	behs	beses	bechis
center	satr	sader	santew
short	sot	cort	sott
trapped	cap	catp	trap
thick	tic	fict	thic
plant	plal	--	--
dress	gas	ges	hais
carry	carey	cariy	carey
stuff	sof	suf	suf
try	tie	chie	triey
crop	cop	cop	cowip
year	yae	eir	yiew
chore	cor	chor	chrw
angry	aiee	aeie	arew
chase	has	cais	cats
queen	qen	qen	qein
wise	wis	wis	yies
drove	wor	duf	towv
cloud	clod	clod	cliub
grabbed	oab	gad	gade
train	tain	tine	tain
shopping	soping	sopin	choping
float	fout	fut	sloit
	35%	40%	44%

=5

SCHLAGEL WORD LIST

Level 2

Student 2

Word	Sept. Spelling	Oct. Spelling	Dec. Spelling
traded	traded	traed	--
cool	kol	kol	kol
beaches	beshs	dechis	beachs
center	sitr	cintr	cinter
short	cort	chort	cort
trapped	traping	trapt	traped
thick	thec	thik	thik
plant	--	--	--
dress	dress	dese	dres
carry	kere	care	cary
stuff	stuf	stof	stuf
try	trie	trie	triy
crop	--	krop	--
year	--	yere	--
chore	chor	chor	chor
angry	agre	angre	are
chase	chas	--	case
queen	qeen	qene	qena
wise	wis	--	--
drove	--	--	--
cloud	clowd	clowd	clowd
grabbed	grabing	gabed	grabed
train	traine	tran	--
shopping	choping	soping	shoping
float	[illegible]	flot	flot
	59%	61%	76%

+2 +15

SCHLAGEL WORD LIST

Level 2

Student 3

Word	Sept. Spelling	Oct. Spelling	Dec. Spelling
traded	treadc	traed	--
cool	--	--	--
beaches	bachs	bchtes	beches
center	cetser	cernter	--
short	stoort	--	--
trapped	traped	traped	--
thick	--	--	thik
plant	--	--	--
dress	--	--	--
carry	--	--	--
stuff	suef	sutff	--
try	trey	--	--
crop	croe	--	--
year	--	--	--
chore	cuor	--	chor
angry	angre	ange	angrey
chase	chis	case	--
queen	--	--	--
wise	wis	--	--
drove	dove	--	--
cloud	clod	clowd	--
grabbed	garabed	grabed	grabed
train	trin	--	--
shopping	shapping	shoping	--
float	flor	flor	flot
	71%	85%	94%
		+14	

SCHLAGEL WORD LIST

Level 2

Student 4

Word	Sept. Spelling	Oct. Spelling	Dec. Spelling
traded	traen	chadid	taed
cool	cal	cole	--
beaches	bejs	bechs	beches
center	siti	citr	citr
short	shors	shot	shot
trapped	tral	traped	draed
thick	thic	thic	thik
plant	plat	plants	plat
dress	trs	drus	drus
carry	caey	cary	cayer
stuff	stuf	stuf	suff
try	tiy	tiy	tiy
crop	cot	coke	crot
year	yenr	yer	yer
chore	chor	chor	--
angry	arge	aingre	aingree
chase	chas	--	case
queen	qeen	--	--
wise	wize	--	wisz
drove	jove	--	--
cloud	cold	cude	clod
grabbed	gaevd	graed	graed
train	--	tian	triah
shopping	soing	soping	shoping
float	fot	flot	--

65%

48% 63% +2

+15

SCHLAGEL WORD LIST

Level 2

Student 5

Word	Sept. Spelling	Oct. Spelling	Dec. Spelling
traded	tridid	trade	draded
cool	coll	--	--
beaches	becis	bechs	beches
center	sintr	sinter	sinter
short	sirt	--	--
trapped	trapt	trapt	trapt
thick	thik	thik	thik
plant	--	--	--
dress	drest	--	--
carry	carey	cary	--
stuff	stul	stul	stuf
try	--	--	--
crop	--	--	--
year	--	yaer	--
chore	chor	chor	--
angry	aingry	--	angrey
chase	--	chas	--
queen	quen	quin	quen
wise	wize	ways	wize
drove	--	drov	--
cloud	colde	clod	clowd
grabbed	grabd	grabd	grabd
train	--	trin	--
shopping	shoping	shoping	--
float	floot	--	--
	69%	74%	85%
	+5	+11	

SCHLAGEL WORD LIST

Level 2

Student 6

Word	Sept. Spelling	Oct. Spelling	Dec. Spelling
traded	trad	traed	--
cool	cook	--	codle
beaches	beatchas	beach	beachse
center	sire	sitner	citer
short	shrt	--	shrot
trapped	tratd	trapt	traped
thick	tick	--	--
plant	plaset	--	--
dress	plaset	--	--
carry	drass	drass	--
stuff	stuft	stuft	stued
try	--	--	--
crop	--	--	--
year	--	--	--
chore	chroy	chory	chroy
angry	anre	aeraey	agrey
chase	chac	caes	--
queen	qeen	qeen	qeen
wise	wiez	wias	--
drove	grov	dovod	--
cloud	claod	caed	claod
grabbed	gred	gaed	graned
train	trien	--	--
shopping	choping	shoping	shoping
[illegible]	flot	foet	flot
	57%	65%	75%
	+8	+10	

Level 2

Student 7

Word	Sept. Spelling	Oct. Spelling	Dec. Spelling
traded	tradid	trad	tradid
cool	col	kool	--
beaches	dethise	bethis	beces
center	sitnr	sintr	sentr
short	soit	sot	cort
trapped	trapt	trapt	trapt
thick	tic	tik	thic
plant	--	--	plat
dress	dres	dres	dres
carry	care	cey	cerey
stuff	stuf	stuf	stuf
try	tri	criy	thriy
crop	--	--	--
year	yere	yel	yere
chore	tore	choy	chor
angry	angre	angrey	angrey
chase	tas	tas	--
queen	qouen	qwen	qwing
wise	yise	wisy	--
drove	drov	--	drov
cloud	klowd	klob	klowd
grabbed	gabed	gabd	gabed
train	tran	nhrem	trane
shopping	sopening	topeing	soping
float	flot	flot	flot
	53%	51%	63%

-2 +12

SCHLAGEL WORD LIST

Level 2

Student 8

Word	Sept. Spelling	Oct. Spelling	Dec. Spelling
traded	trad	trabi	chadid
cool	col	col	cole
beaches	betis	beas	bechis
center	sntr	sanr	satre
short	sot	shot	chot
trapped	tcat	shapt	chapt
thick	tic	thik	cik
plant	ok	plnt	plate
dress	das	hres	dias
carry	cary	ceay	cary
stuff	saf	stuf	cof
try	ti	shrie	chie
crop	rop	kgop	cope
year	ue	yer	aore
chore	chr	shor	--
angry	agry	arge	ainge
chase	bas	shes	chas
queen	cen	qwin	qeine
wise	yiz	wis	--
drove	crov	gwv	doivr
cloud	clab	klod	cold
grabbed	grabd	gabd	graed
train	tran	thin	tain
shopping	sopg	shpinp	shoping
float	flot	fot	fot
	39%	40%	41%
	+1	+1	

SCHLAGEL WORD LIST

Level 2

Student 9

Word	Sept. Spelling	Oct. Spelling	Dec. Spelling
traded	chand	trade	taed
cool	coal	clod	coel
beaches	bechs	shnches	bchs
center	sant	--	setr
short	shot	shen	sort
trapped	thap	chrat	trapet
thick	thek	tiheek	teck
plant	--	--	pentl
dress	dase	gres	desse
carry	cary	cery	cyeye
stuff	stof	stuuf	stuf
try	--	chry	--
crop	corp	corp	--
year	--	yer	yere
chore	chor	chor	tore
angry	anrg	agrye	aning
chase	chaa	--	chs
queen	qein	qen	qene
wise	yos	yis	yaes
drove	gov	trov	dove
cloud	klad	clowd	clod
grabbed	grmt	grab	grad
train	tren	tane	--
shopping	shong	spiping	soping
float	floot	bote	folt
	46%	50%	51%
	+4	±1	

SCHLAGEL WORD LIST

Level 2

Student 10

Word	Sept. Spelling	Oct. Spelling	Dec. Spelling
traded	trad	--	trade
cool	col	col	colu
beaches	betis	beese	becise
center	sntr	setr	sintr
short	sot	sot	sort
trapped	trat	trapt	trapt
thick	tic	tec	tick
plant	--	--	--
dress	bnas	bes	dros
carry	caney	cevey	cevye
stuff	stuf	stuf	stus
try	triy	triry	trive
crop	--	--	--
year	uer	yer	yeru
chore	tar	wow	choru
angry	agry	agre	agre
chase	gas	shes	--
queen	cen	wen	quen
wise	yiz	wis	wisve
drove	drov	bov	--
cloud	clad	clod	clad
grabbed	grabd	gwabd	grad
train	tran	tran	trane
shopping	copen	sapen	soping
float	flot	flot	floote
	46%	47%	59%
		+1	+12

82

SCHLAGEL WORD LIST

Level 2

Student 11

Word	Sept. Spelling	Oct. Spelling	Dec. Spelling
traded	traetde	chraked	trade
cool	kull	kull	cull
beaches	betcis	beeths	bectlise
center	sitr	sint	sintr
short	srlcut	shotc	shote
trapped	tapt	thrapth	chapt
thick	tick	--	thik
plant	--	--	--
dress	gres	gres	gres
carry	care	--	--
stuff	stuf	stuf	stuf
try	trile	chiy	triy
crop	kop	ckop	cop
year	cklie	yeer	yerw
chore	tole	torc	--
angry	agnde	ary	ange
chase	tase	tase	--
queen	quele	--	--
wise	uovs	yis	--
drove	goole	grove	groj
cloud	kaud	clad	clowd
grabbed	gabd	grab	grab
train	thran	trane	--
shopping	hapin	shoping	shoping
float	fote	flote	flote
	36%	56%	64%
	+20	+8	

SCHLAGEL WORD LIST

Level 2

Student 12

Word	Sept. Spelling	Oct. Spelling	Dec. Spelling
traded	chradid	chradid	chade
cool	--	--	--
beaches	bechis	bechis	bechis
center	setre	--	seter
short	shrt	shot	shot
trapped	chapt	chrapt	traped
thick	nice	thik	thic
plant	plate	--	--
dress	gres	drss	drss
carry	carey	cerry	--
stuff	stuf	stof	stof
try	chrie	chrie	thiy
crop	kope	krop	kroc
year	--	--	--
chore	chor	chor	chor
angry	uagre	egre	ugre
chase	chas	chas	chas
queen	qeen	--	--
wise	wisse	--	wizw
drove	gove	grove	grove
cloud	clod	clowd	clod
grabbed	grade	grabd	grabe
train	chran	thran	--
shopping	shoping	shoping	shoping
float	flot	flot	flot
	53	65	69
	+12	+4	

Level 2

Student 13

Word	Sept. Spelling	Oct. Spelling	Dec. Spelling
traded	haid	thand	cradide
cool	kulu	chule	ckule
beaches	behse	bechis	becking
center	sitn	sitey	soentre
short	srt	horte	sorte
trapped	hrat	tote	trute
thick	tik	hike	ticked
plant	plapt	plate	plate
dress	jrat	jos	brese
carry	car	kirey	cerrey
stuff	stuf	stufe	stufe
try	hriy	triy	triecye
crop	krip	krikey	ckrope
year	wen	wro	wire
chore	hary	--	ckore'
angry	ange	angrey	angre
chase	has	chas	ckase
queen	keu	kenue	ckoeene
wise	wiz	hise	wiske
drove	jrj	drob	jrove
cloud	klib	kldd	cklonde
grabbed	grb	gade	grande
train	foran	trane	trane
shopping	slpey	supene	soping
float	flop	flot	flete
	24%	37%	46%
	+13	+9	

Level 2

Student 14

Word	Sept. Spelling	Oct. Spelling	Dec. Spelling
traded	jad	trad	trade
cool	okl	--	--
beaches	bhis	seges	bechise
center	sitr	sitr	sitr
short	sut	sort	soot
trapped	jap	trapt	trapt
thick	thn	thik	thic
plant	pat	pat	--
dress	jis	tres	tres
carry	carey	cary	carre
stuff	suf	stuf	stof
try	jwi	tri	triy
crop	kop	cop	cop
year	rwr	yer	yre
chore	jo	tror	joor
angry	age	agey	agre
chase	jas	tras	jase
queen	owen	qene	qene
wise	yis	wys	--
drove	jov	trove	trov
cloud	cob	cowd	clowd
grabbed	cab	gabd	grabd
train	han	gane	trian
shopping	soping	soping	shoping
float	fot	fote	flot
	26%	46%	55%
		+20	+9

SCHLAGEL WORD LIST

Level 2

Student 15

Word	Sept. Spelling	Oct. Spelling	Dec. Spelling
traded	tradid	trad	traed
cool	klok	kol	cul
beaches	behis	pethis	bechis
center	sitr	sintr	sinter
short	sot	shot	--
trapped	trapd	trapt	traped
thick	ski	thic	thik
plant	--	--	--
dress	dres	dres	dres
carry	cary	cary	cary
stuff	tof	stf	stuf
try	triy	triy	--
crop	kiop	krop	krop
year	yrer	wer	yer
chore	tor	thor	ctor
angry	acre	dgry	--
chase	tas	thas	ctas
queen	keing	qen	qwen
wise	yis	wis	wiese
drove	grov	dov	drov
cloud	kold	klowd	klowd
grabbed	tab	grad	grabid
train	tran	tran	--
shopping	shoping	soping	shoping
float	slot	flot	flot
	43%	52%	69%
	+9	±17	

SCHLAGEL WORD LIST

Level 2

Student 16

Word	Sept. Spelling	Oct. Spelling	Dec. Spelling
traded	traided	traied	traed
cool	--	--	--
beaches	beachs	--	--
center	senter	senter	senter
short	--	--	--
trapped	traped	traped	--
thick	--	--	--
plant	--	--	--
dress	--	--	--
carry	--	--	--
stuff	--	--	--
try	--	--	--
crop	--	--	--
year	--	--	--
chore	--	--	--
angry	aingree	arangy	--
chase	chace	chace	chace
queen	--	--	--
wise	wis	wis	wis
drove	--	--	--
cloud	--	clod	--
grabbed	crabed	grabed	grabed
train	--	--	--
shopping	--	shoping	--
float	--	--	--
	90%	90%	94%
	+0	+4	

SCHLAGEL WORD LIST

Level 2

Student 17

Word	Sept. Spelling	Oct. Spelling	Dec. Spelling
traded	hare	tceeyde	tradid
cool	catr	--	--
beaches	binny	bhich	bach
center	sanar	sarryr	sur
short	sherit	chact	shot
trapped	chertl	thaek	trip
thick	terira	thik	thic
plant	patrin	plet	--
dress	rinana	deec	drass
carry	ceaay	ceray	cary
stuff	cuena	ceaf	stuf
try	thrys	caie	tri
crop	chies	shepsp	crip
year	yers	rarsr	yaer
chore	char.	chaelsr	chol
angry	uatra	agase	agra
chase	catrra	chsae	--
queen	qunana	cesnnynen	gign
wise	catin	swcs	yiss
drove	yuoum	jeme	dave
cloud	cams	caib	clood
grabbed	gam	gaib	gadd
train	ting	ther	trin
shopping	shererin	santning	shiping
float	farurt	fansst	floot
	19%	28%	56%
	+9	+28	

SCHLAGEL WORD LIST

Level 2

Student 18

Word	Sept. Spelling	Oct. Spelling	Dec. Spelling
traded	--	--	--
cool	--	--	--
beaches	beches	BEACH	--
center	senter	--	scenter
short	--	--	--
trapped	thraed	traped	traped
thick	--	--	--
plant	--	--	--
dress	--	--	--
carry	--	cary	--
stuff	--	--	--
try	--	--	--
crop	--	--	--
year	--	--	--
chore	chor	--	chor
angry	angrey	--	--
chase	--	--	--
queen	--	--	--
wise	--	--	--
drove	--	--	--
cloud	cłowd	--	eload
grabbed	grabed	grabed	--
train	--	--	--
shopping	shoping	shoping	shoping
float	flot	--	--
	88%	95%	95%

INDIVIDUAL CHILDREN'S SPELLINGS

LEVEL 3

QUALITATIVE INVENTORY OF WORD KNOWLEDGE

SCHLAGEL WORD LIST

Student 1 Level 3

Word	Sept. Spelling	Spelling	Spelling
send	sin	sin	sind
gift	gif	gif	gif
rule	rour	rul	miwe
trust	tuis	tust	chuist
soap	suop	sup	staip
batter	batr	bader	bater
knee	nei	nee	neie
mind	min	mien	miein
scream	sinm	sinm	sleime
sight	siet	siet	soiet
chain	san	cain	--
count	cait	caint	caint
knock	nic	noc	noitc
caught	coot	cit	coite
noise	nos	nois	noies
careful	cafor	cafl	carfil
stepping	sabn	sibing	sopeing
chasing	casn	chasin	chasin
straw	sol	soll	soile
nerve	nov	nrv	nive
thirsty	fose	hisdit	chesde
baseball	basball	bisbill	baiesball
circus	sots	soits	cogeis
handle	habo	hinol	candil
sudden	sont	suint	sudiot
	30%	44%	45%
	+14	+1	

SCHLAGEL WORD LIST

Student 2 Level 3

Word	Sept. Spelling	Spelling	Spelling
send	sind	sind	cind
gift	--	--	--
rule	roel	role	rol
trust	trost	--	trost
soap	sope	sope	sope
batter	bater	batr	bater
knee	nee	--	knea
mind	--	minde	--
scream	ckrem	ckrem	creme
sight	ciet	site	cite
chain	chan	chang	chane
count	kaot	cawnt	cawnt
knock	knok	knoc	noc
caught	kot	kot	cot
noise	noes	noes	noes
careful	kere	karfl	carfol
stepping	stepeine	steeping	steping
chasing	--	shasing	chasen
straw	strol	strol	strow
nerve	nrv	nrve	niov
thirsty	thrste	thrste	thrste
baseball	bosball	baesball	--
circus	srks	crkis	crkus
handle	handl	handol	hadol
sudden	sudin	sodin	sudun
	52%	57%	55%
	+5	-3	

SCHLAGEL WORD LIST

Student 3 Level 3

Word	Sept. Spelling	Spelling	Spelling
send	--	--	--
gift	--	--	--
rule	--	--	--
trust	trset	--	--
soap	soup	--	--
batter	bater	bater	--
knee	--	--	--
mind	--	--	--
scream	scem	skri,	screm
sight	--	--	site
chain	chan	chian	--
count	cont	--	--
knock	nock	nock	nocke
caught	cot	coit	cote
noise	--	--	--
careful	carful	cafful	--
stepping	septing	stping	--
chasing	ching	casing	cohsing
straw	sholle	strole	--
nerve	nrove	nrve	nurve
thirsty	thrte	thrste	trste
baseball	basball	basball	basball
circus	crcus	crisce	curcus
handle	halnd	handl	--
sudden	sund	suddn	--
	67%	75%	81%
	+8	+6	

SCHLAGEL WORD LIST

Student 4 Level 3

Word	Sept. Spelling	Spelling	Spelling
send	sind	sind	sind
gift	--	gite	--
rule	role	rolle	rull
trust	--	chust	--
soap	sope	soOpe	sope
batter	batr	battr	--
knee	nee	--	--
mind	--	mide	minde
scream	ckrem	scem	sream
sight	ciet	siet	site
chain	chan	chian	chane
count	kaot	cote	cunt
knock	knok	noce	nock
caught	kot	cote	cot
noise	noes	nose	nosie
careful	kere	carfull	carefull
stepping	stepeine	stuping	suping
chasing	--	--	--
straw	strol	stole	strol
nerve	nrv	nrve	nuvf
thirsty	thrste	thste	thrsty
baseball	bosball	basball	--
circus	srks	crisce	cics
handle	handl	hadl	handdul
sudden	sudin	sudn	suddin
	55%	54%	71%
	-1	+17	

SCHLAGEL WORD LIST

Student 5 Level 3

Word	Sept. Spelling	Spelling	Spelling
send	sind	sind	--
gift	--	--	--
rule	roul	--	--
trust	--	--	--
soap	soup	--	--
batter	bater	--	bater
knee	neia	--	--
mind	--	--	minde
scream	screm	screm	--
sight	site	--	site
chain	chane	chan	chane
count	conte	cont	coint
knock	nock	colck	nolk
caught	colt	colt	colt
noise	--	nosie	noze
careful	carfol	carlfull	carefull
stepping	sting	steping	--
chasing	chaesen	--	chaing
straw	strol	stroll	stroll
nerve	nurv	nerv	narv
thirsty	thrstea	thaerstea	thurstea
baseball	basball	basball	baseboll
circus	cirkist	carkis	surkis
handle	handdill	handel	handel
sudden	suding	suden	suden
	59%	77%	73%

+18 -4

SCHLAGEL WORD LIST

Student 6 Level 3

Word	Sept. Spelling	Spelling	Spelling
send	sind	siend	cined
gift	geift	gieat	--
rule	reul	rail	ronle
trust	trut	truet	--
soap	--	--	--
batter	betr	batr	--
knee	neuv	neav	--
mind	miad	--	--
scream	scem	ckeam	screm
sight	cit	siett	sint
chain	chen	chean	chane
count	cant	coent	conoct
knock	nock	nock	--
caught	cock	cotat	coist
noise	nois	noicen	--
careful	cafl	cafel	cafel
stepping	saping	saping	steping
chasing	casc	--	chaseing
straw	stol	tranl	strle
nerve	norv	nrav	nrove
thirsty	thste	thrasy	thste
baseball	--	--	--
circus	sc	conds	cuscne
handle	hanl	hadl	hadel
sudden	suen	sudn	sune
	50%	58%	69%
	+8	+11	

SCHLAGEL WORD LIST

Student 7 Level 3

Word	Sept. Spelling	Spelling	Spelling
send	sind	sind	--
gift	git	--	grfl
rule	roul	rol	rool
trust	thrust	--	--'
soap	sope	sop	sope
batter	bater	datr	batr
knee	neye	ney	neye
mind	minde	--	minde
scream	screne	screm	skrem
sight	site	siat	site
chain	cane	can	cane
count	cont	cont	cont
knock	nok	noc	nok
caught	kot	cot	coat
noise	noeze	noes	nowes
careful	cerfol	kerfol	cerfl
stepping	sepeing	stepeing	steping
chasing	casene	thaseing	--
straw	stol	strol	strol
nerve	nrv	nrv	nrve
thirsty	trtey	trstey	thrstey
baseball	dasdoll	basboll	--
circus	srkcs	srks	srees
handle	hndl	handl	handol
sudden	sudin	sudn	suden
	52%	55%	61%
	+3	+6	

SCHLAGEL WORD LIST

Student 8 Level 3

Word	Sept. Spelling	Spelling	Spelling
send	--	siad	cand
gift	gi	--	givt
rule	rol	lul	rol
trust	tnu	shrt	chast
soap	sop	sope	sop
batter	batr	bater	battr
knee	ney	niey	neen
mind	--	minde	--
scream	scnem	scem	skem
sight	sit	sit	siot
chain	chan	chan	jhan
count	cant	cant	cout
knock	noc	nok	nok
caught	cot	kot	cot
noise	nos	noos	naos
careful	cefl	kafl	cafl
stepping	stapm	staping	saeing
chasing	casen	shasing	--
straw	strol	shul	stol
nerve	nrv	nrve	nrav
thirsty	tnte	thustey	trste
baseball	basbl	basball	basball
circus	skrs	srcis	crks
handle	hnd	hadol	hadl
sudden	sode	sudn	catn
	39%	49%	48%
	+10	-1	

SCHLAGEL WORD LIST

Student 9 Level 3

Word	Sept. Spelling	Spelling	Spelling
send	--	sind	--
gift	--	--	--
rule	rlo	rull	rolle
trust	just	thust	chust
soap	soep	sope	sope
batter	batr	batr	bater
knee	nea	nece	neke
mind	meat	minde	minde
scream	serm	scrm	screm
sight	sat	sit	site
chain	chan	chane	caing
count	cnt	--	conkt
knock	naek	noke	noke
caught	kot	cotc	cotc
noise	nose	nose	noes
careful	callnf	krfll	crcvu
stepping	steing	steping	steping
chasing	chaas	chsing	chsing
straw	sral	strll	strl
nerve	neav	brav	nrve
thirsty	thest	thstche	thres
baseball	basball	basball	basball
circus	skis	ckiss	crkes
handle	hant	hold	handl
sudden	sant	sdn	suden
	45%	53%	56%
	+8	+3	

SCHLAGEL WORD LIST

Student 10 Level 3

Word	Sept. Spelling	Spelling	Spelling
send	--	sind	sind
gift	git	--	--
rule	rol	lul	rolu
trust	trast	--	--
soap	sop	sowp	sope
batter	batr	batr	batr
knee	ney	ney	neve
mind	--	--	minde
scream	screm	scem	sceme
sight	sit	situ	site
chain	tan	canu	chan
count	cant	cant	cant
knock	noc	nock	noc
caught	cot	cot	cot
noise	nos	nos	nosu
careful	cefl	kefol	cifl
stepping	stapn	stapen	stepnuing
chasing	casen	thasen	chasne
straw	atrol	stlol	stroall
nerve	nrv	nrve	nrvu
thirsty	tnte	thrstey	trsteye
baseball	basbl	basbol	--
circus	srcs	srcis	srcisu
handle	hndl	hadol	handl
sudden	sode	suden	sudn
	42%	46%	53%
	+4	+7	

SCHLAGEL WORD LIST

Student 11 Level 3

Word	Sept. Spelling	Spelling	Spelling
send	sinu	sind	sind
gift	gfot	--	--
rule	rol	roll	rall
trust	tust	chust	strust
soap	sop	sope	sope
batter	batre	batr	batr
knee	netle	neev	nev
mind	minde	minde	mined
scream	screame	sreem	screem
sight	site	site	site
chain	tane	tane	chane
count	kawt	cawt	conut
knock	nok	nock	noc
caught	kot	kot	kot
noise	nose	nose	noseye
careful	kafle	ckare	karfoll
stepping	sepen	stiping	stenping
chasing	tusen	tuseing	--
straw	strol	strol	stiro
nerve	nrothe	nrveev	nuiv
thirsty	treste	rrsteet	thrsit
baseball	bstboll	--	basyboll
circus	srkeks	srkis	srcis
handle	hndle	handl	hand
sudden	sudin	sund	sund
	39%	50%	53%
	+11	+3	

SCHLAGEL WORD LIST

Student 12 Level 3

Word	Sept. Spelling	Spelling	Spelling
send	--	--	--
gift	gifte	--	--
rule	rulle	roll	reual
trust	thrust	chast	tcust
soap	suop	--	--
batter	batre	bater	bater
knee	nee	--	--
mind	mide	minde	mined
scream	skrem	skrem	screm
sight	site	site	siat
chain	chane	chan	chan
count	cote	cont	cont
knock	noke	cock	nock
caught	kote	cot	cot
noise	naws	--	nows
careful	krflle	cafal	cerfl
stepping	stepen	stiping	steping
chasing	chasen	--	chsing
straw	sholle	shral	strol
nerve	nave	nrve	nrve
thirsty	hrste	trste	thrsty
baseball	basball	basball	basball
circus	srkis	crics	crkis
handle	hadl	hadol	handul
sudden	sudin	saddn	sudin
	45%	63%	68%
		+18	+5

SCHLAGEL WORD LIST

Student 13 Level 3

Word	Sept. Spelling	Spelling	Spelling
send	sind	sind	sende
gift	--	gif	gife
rule	rurl	--	--
trust	trut	--	truse
soap	soep	sope	sope
batter	datr	batre	batre
knee	new	ney	newe
mind	--	--	minde
scream	skrem	skreme	skreme
sight	stot	site	sine
chain	tran	tane	ckane
count	kat	ckot	conte
knock	nok	nock	noke
caught	kot	kot	kcote
noise	nos	nose	nose
careful	kafl	kofoy	kefle
stepping	stapen	stopene	stepenue
chasing	tase	whasene	ckaseene
straw	srow	strolle	stole
nerve	nrv	nrve	nrves
thirsty	trsey	whrstey	hrste
baseball	basdoll	besbill	bassboll
circus	srkss	srckis	srckies
handle	hand	--	--
sudden	sund	suind	sunine
	39%	46%	45%
	+7	-1	

SCHLAGEL WORD LIST

Student 14 Level 3

Word	Sept. Spelling	Spelling	Spelling
send	sinh	sind	sind
gift	kift	--	givt
rule	oul	rool	rool
trust	just	gust	--
soap	sop	sop	sope
batter	batr	batr	batr
knee	nie	ne	nee
mind	mib	mide	--
scream	skem	scem	skreme
sight	sit	sit	site
chain	juan	gan	jane
count	kut	cowt	cowt
knock	nok	nock	nock
caught	kot	cot	ckote
noise	nos	nors	noose
careful	kif	krfll	carfull
stepping	siping	seping	staping
chasing	jasin	gasing	jasing
straw	sol	stol	srtol
nerve	nuv	nrve	nrve
thirsty	thrse	thste	thrste
baseball	paspol	pasbull	basballe
circus	srkis	srkis	srkus
handle	hadl	hadl	handl
sudden	sudn	sudn	sudin
	34%	46%	55%
		+12	+9

SCHLAGEL WORD LIST

Student 15 Level 3

Word	Sept. Spelling	Spelling	Spelling
send	sind	sind	sind
gift	--	--	givt
rule	rol	rul	rul
trust	trost	--	--
soap	sop	--	sope
batter	batr	batr	bater
knee	--	--	--
mind	--	--	--
scream	srem	skreem	skrem
sight	sit	--	site
chain	htan	than	shan
count	kont	cont	kownt
knock	nok	noc	nok
caught	kot	koite	cot
noise	nos	nose	noes
careful	kefl	kafl	carfl
stepping	stapeg	steping	steping
chasing	thasing	thasing	--
straw	strol	trol	strol
nerve	nrv	nrve	nrv
thirsty	hsrte	shrste	thrste
baseball	basboll	basboll	basboll
circus	srkis	srkis	sarkis
handle	hand	handl	handl
sudden	sund	sudin	sund
	46%	61%	60%
	+15	-1	

SCHLAGEL WORD LIST

Student 16 Level 3

Word	Sept. Spelling	Spelling	Spelling
send	--	--	--
gift	--	--	--
rule	rool	rool	roll
trust	--	--	--
soap	--	--	--
batter	bater	--	bater
knee	--	--	--
mind	--	--	--
scream	--	scearm	--
sight	--	--	--
chain	--	--	chin
count	--	--	--
knock	nock	nock	nock
caught	cot	cot	cot
noise	nois	nois	nois
careful	carfl	carful	caferl
stepping	steeping	steping	--
chasing	chasing	chacing	chacing
straw	--	--	--
nerve	--	--	--
thirsty	--	--	thiste
baseball	--	--	--
circus	circks	curice	cicrlce
handle	--	--	--
sudden	suden	suden	suden
	88%	86%	82%

SCHLAGEL WORD LIST

Student 17 Level 3

Word	Sept. Spelling	Spelling	Spelling
send	senad	sasd	sunid
gift	geint	gamessf	--
rule	reril	reve	ronl
trust	tenilt	cait	--
soap	sentip	cait	--
batter	btat	ballsr	--
knee	nanae	neneed	nie
mind	matts	mied	midd
scream	seests	caves	ciem
sight	cqeet	sunt	scitt
chain	shena	chaen	chan
count	trinw	ceayssyen	coonot
knock	naenst	nocyc	nocs
caught	camw	cast	cott
noise	nanse	neus	noes
careful	cmewmr	cafrl	cafl
stepping	strian	saeping	staping
chasing	cheri	chasin	--
straw	sinal	sirl	siall
nerve	nave	rvevy	naive
thirsty	tenae	theye	thrte
baseball	basball	bussball	basball
circus	senass	cuas	craesseas
handle	hates	haell	handol
sudden	seat	surn	suddn
	28%	39%	56%
	+11	+17	

SCHLAGEL WORD LIST

Student 18 Level 3

Word	Sept. Spelling	Spelling	Spelling
send	--	--	--
gift	--	--	--
rule	rool	roul	--
trust	--	--	--
soap	--	--	--
batter	bater	==	==
knee	--	--	--
mind	--	--	--
scream	screm	sceram	--
sight	--	--	--
chain	chane	--	chane
count	--	--	--
knock	knoke	--	--
caught	cout	--	--
noise	knois	nois	nois
careful	--	--	--
stepping	stping	steping	--
chasing	chaisn	chaseing	--
straw	--	--	--
nerve	nerv	nerv	nerv
thirsty	thersty	thursty	therste
baseball	--	--	baceball
circus	serfes	curcus	curicus
handle	handel	--	handel
sudden	suden	suden	--
	77%	92%	91%

+15 -1